

15¢

\$5.50 A YEAR

May 22, 1954

VOL. 51 NO. 21 PAGES 225-324

SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Kentucky Warbler

See Page 321

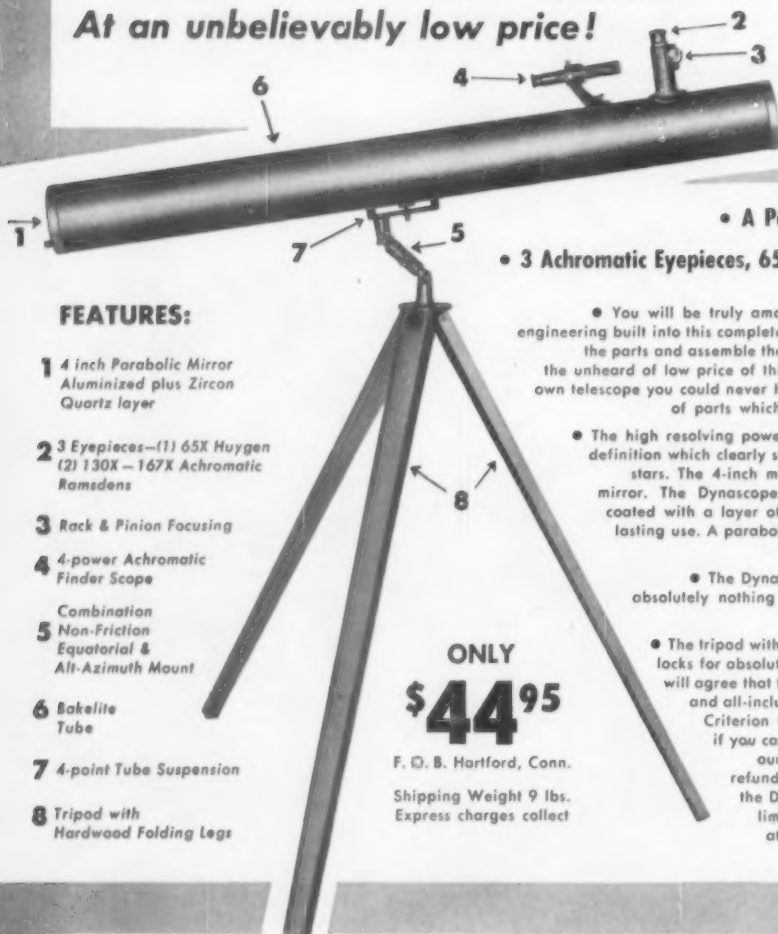
A SCIENCE SERVICE PUBLICATION

**At Last! A Complete Professional Telescope
For Amateur Astronomers**

The 4 Inch DYNASCOPE Reflector

Reg. U. S. Pat. Off.

At an unbelievably low price!



FEATURES:

- 1 4 inch Parabolic Mirror
Aluminized plus Zircon
Quartz layer
- 2 3 Eyepieces—(1) 65X Huygen
(2) 130X—167X Achromatic
Ramsdens
- 3 Rack & Pinion Focusing
- 4 4-power Achromatic
Finder Scope
- 5 Combination
Non-Friction
Equatorial &
Alt-Azimuth Mount
- 6 Bakelite
Tube
- 7 4-point Tube Suspension
- 8 Tripod with
Hardwood Folding Legs

- A Parabolic Mirror! • 4 Power Finder!
- 3 Achromatic Eyepieces, 65X—130X—167X • Folding Tripod!

• You will be truly amazed at the scientific accuracy and technical engineering built into this complete reflecting telescope. If you were to purchase the parts and assemble them yourself, you would spend much more than the unheard of low price of this precision instrument. And in building your own telescope you could never hope to attain the accuracy and co-ordination of parts which have been engineered into the Dynascope.

• The high resolving power of the parabolic mirror produces exquisite definition which clearly separates such celestial phenomena as double stars. The 4-inch mirror gathers $\frac{1}{2}$ more light than a $3\frac{1}{2}$ -inch mirror. The Dynascope parabolic mirror is aluminized and then coated with a layer of zircon quartz for maximum protection and lasting use. A parabolic mirror of such quality has previously been obtainable only in high-priced instruments.

• The Dynascope assembly includes everything—there is absolutely nothing else to buy. There are no added charges for extra eyepieces—or a view finder.

• The tripod with hardwood folding legs is fitted with position locks for absolute stability. Study the list of features and you will agree that this unprecedented offer is the most generous and all-inclusive you have ever seen anywhere. The usual Criterion money-back guarantee applies and, in fact, if you can duplicate this instrument for less than twice our unheard of low price, your money will be refunded at once. With a precision instrument like the Dynascope Reflector, production is necessarily limited but we can make immediate shipment at this time. Send check or money order now with full guarantee of satisfaction.

ONLY
\$44⁹⁵

F. D. B. Hartford, Conn.

Shipping Weight 9 lbs.
Express charges collect

• NOW YOU CAN HAVE A REFLECTING TELESCOPE
OF PROFESSIONAL CALIBER FOR ACCURATE
ASTRONOMICAL OBSERVATION!

• THE ONLY TELESCOPE AVAILABLE FOR UNDER
\$100 WITH A PARABOLOID MIRROR, RACK &
PINION FOCUS, AND 3 ACHROMATIC EYEPIECES!

Manufacturers and Distributors of Optical Instruments

THE CRITERION MANUFACTURING COMPANY

331 Church Street • Hartford 1, Connecticut, Dept. SND2
Telephone: CHapel 7-1696 • Cable Address: CRICO

PUBLIC HEALTH

Civil Defense Hospital

Austerity and efficiency keynote the Federal Civil Defense Administration's 200-bed, mobile improvised hospital for use at an attack or disaster scene.

► IF GLEAMING tile and chrome and a pretty nurse tightening snowy sheets over a thick mattress make up your picture of a hospital, you will not find it in the nation's newest one.

Nurses will be there, 20 of them plus 125 nurse's aides and assistants, and they may be pretty. But the only sheets they will have to straighten will be olive drab paper ones, and there will be no mattresses on the folding cot beds.

Austerity and efficiency keynote this new hospital. It was designed by the Federal Civil Defense Administration to provide part of the answer to what President Eisenhower has called the "awful arithmetic of the atomic bomb."

According to some of this arithmetic, a typical medium sized American city hit by a nominal sized atomic bomb would have only 6,639 usable hospital beds to care for 42,670 casualties needing hospital care and treatment in the first 24 hours after the bombing. That leaves 21,868 hospital beds to be improvised.

A hospital bed means more than just a bed or cot. It means blood or plasma or a substitute and a stand to hang the transfusion bottle on. It means sleep-inducing, pain-killing drugs, heart stimulants and antibiotics to fight infection. It means X-rays and plaster of paris for broken bones, and an operating table and surgical instruments and equipment for cleaning and sterilizing the instruments and surgical supplies. It means anesthetics and basins and bedpans and food.

All of this, except the food and kitchen equipment, in quantities large enough for 200 casualties, are provided in FCDA's new 200-bed, mobile improvised hospital. Enough expendable supplies are included for the first 36 to 48 hours of operation.

Armed Forces medical teams and their former patients will feel right at home in this hospital because it is modeled after the 60-bed Mobile Army Surgical Hospital, or MASH, which in Korea provided superior surgical care for non-transportable battle casualties as close as possible to the front lines. All equipment items are procured through the Armed Forces Medical Procurement Agency.

The total cost of the 200-bed hospital complete is \$26,435.47. It can be transported in a single van. It weighs about 12 and one-half tons, occupies 2,000 cubic feet and consists of about 450 packages, crates and bundles.

When assembled, it requires about 15,000 square feet of space. It is designed for location in a modern school or similar building of not more than two stories. It

can be set up in about four hours by about 30 professional and semi-trained auxiliaries, with untrained volunteers helping.

It is designed to provide, as close to the disaster area as possible, a haven for the desperately wounded where they can be given such physical comfort as possible and whatever lifesaving treatment they may need.

Three operating rooms, a central supply room, a pharmacy, an X-ray room and a clinical laboratory, a triage area, morgue, storage and office space plus 10 wards of 20 beds each make up the hospital.

Food, perhaps cooked in the school kitchen, is to be provided patients and staff by local civil defense welfare workers with their own supplies and equipment.

The staff, aside from the kitchen unit, would include 10 physicians and allied medical personnel, 20 professional nurses, 125 nurse's aides and similar auxiliaries, and 75 miscellaneous volunteer workers to serve as orderlies, etc.

As part of the federal emergency reserve

medical supplies, FCDA now has 200 of the new emergency hospitals on order. More than 90 more are on order for states and cities under the matching funds program in which the federal government pays half the cost.

The first assembled one is now being shown to medical and civil defense authorities in Washington. It may be opened to the public later.

Science News Letter, May 22, 1954

ORNITHOLOGY

Kentucky Warbler Has Specks and Sideburns

See Front Cover

► THE DIGNIFIED nesting bird shown on the cover of this week's SCIENCE NEWS LETTER is a Kentucky warbler.

Both the male and the female wear gold-rimmed spectacles and long black sideburns. In addition to their striking facial markings, these wood warblers have beautiful olive-green feathers on the upper part of the body and rich yellow ones on the under side.

The song of the male, often heard all day long during the nesting season, is a loud clear whistled series of two notes that sound like tur-dle, tur-dle, tur-dle.

Once this song is heard and recognized, it can be used to identify this particular bird from its many wood warbler relatives.

Science News Letter, May 22, 1954



EMERGENCY CIVIL DEFENSE HOSPITAL—Dr. Marion Mills of the Federal Civil Defense Administration is shown helping to set up one of the wards in the new FCDA improvised hospital recently put on display. A single van can move the many different types of equipment included in the emergency set-up, which can be put in full operation in four hours after arrival at a disaster or attack scene.

ASTRONOMY

New Supernova Spotted

Exploding star, believed past its maximum, spotted in the faint spiral galaxy, NGC 5668. Of magnitude 14, it can be seen only with the largest telescopes.

► AN EXPLODING star, or supernova—which can blaze about 100,000,000 times brighter than our sun—has been discovered with the 18-inch Schmidt telescope at Palomar Observatory, Pasadena, Calif.

Supernovae are stars that occasionally, with startling rapidity, flare brilliantly, then gradually fade out again. In our own Milky Way pinwheel of stars, three such gigantic explosions have been recorded.

The universe is peppered with hundreds of thousands of galaxies besides the Milky Way. Most extra-galactic objects are so far away they appear only as blurred areas of light on photographs, even those having long exposures. The individual stars of the pinwheel systems cannot be separated.

The new supernova appeared in such a faint spiral galaxy, NGC 5668, which previously had been so inconspicuous it is known only by the number that locates it in the sky. NGC 5668 is in the constellation of Virgo, the virgin, visible in the southern sky about half-way between the horizon and directly overhead.

The supernova itself, however, is not visible. Its magnitude, or relative visual brightness, is 14, so it can be seen only with the largest telescopes.

Astronomers estimate that, in any one galaxy, supernovae appear only once every 500 years or so. Although there are hundreds of thousands of galaxies, the quick flare-up and disappearance of a supernova, as well as galactic distances, result in only a few being seen.

The blazing star was discovered by Dr. Paul Wild, an astrophysicist at the California Institute of Technology. In an 18-inch Schmidt exposure made three years ago, no separate stars were visible in NGC 5668. The new supernova was spotted May 4 on a film taken early the previous morning. It appeared as a bright spot in the nebula.

Dr. Wild believes that the object was already beyond its maximum brightness at that time, because it has seemed to be slightly dimmer on succeeding observations. Its absolute magnitude at greatest brightness cannot be definitely known before its distance is found, and before astronomers learn how fast the supernova is fading out.

Their preliminary estimate is that it was about as bright as previous supernovae, which have been about 100,000,000 times brighter than our sun. If the sun were at a distance of 200 million million miles from us, where it would be barely visible to the unaided eye, and then exploded like a supernova, it would appear four times as bright as the full moon.

Spectroscopic studies made with the 200-

inch Hale telescope by Dr. Milton L. Humason of the Mt. Wilson Observatory show that the new supernova is of type I.

Palomar Observatory is jointly operated with the Mt. Wilson Observatory by the Carnegie Institution of Washington and California Institute of Technology.

Science News Letter, May 22, 1954

PSYCHIATRY

Glutamic Acid Gives Zest to Elderly

► AGED MENTAL patients get more zest for life and are more active when given glutamic acid, Dr. H. E. Himwich of Galesburg, Ill., State Research Hospital reported at the meeting of the American Psychiatric Association in St. Louis.

Glutamic acid is an amino acid, one of the so-called building blocks of protein. Its value for raising the intelligence level of mental defectives, improving patients with a certain type of epilepsy and aiding in other ailments has been argued by medical men, psychiatrists and psychologists for some time.

However, they have pretty well agreed that it increases activity in both animals and man.

"Because old people are slowed down, about 30 patients, aged from 50 to 76, with 17 of them older than 65, were chosen for investigation of the effect of glutamic acid," Dr. Himwich reported.

"They had all been in state hospitals for some time, the average stay being 15 years. These elderly psychotic patients were fed a supplement of tomato juice in addition to their regular meals. The tomato juice contained either 15 grams of glutamic acid or a similarly tasting mixture but devoid of glutamic acid.

"The patients received either the glutamic acid or the mixture for alternate 12-week periods. But the physicians examining these patients did not know whether they were receiving glutamic acid or the mixture free from glutamic acid and, therefore, were unbiased in their diagnostic assays of the patients.

"Of the 27 patients who completed this study, 17 improved. Among these 17, the most consistent effect, observed in 16 out of 17, was an increase in activity. Not only did they do better on their jobs, but they showed more interest in the work.

"The next biggest improvement was in their emotions and outlook on life. Twelve of the 17 patients became more optimistic and cheerful and appeared to enjoy life more. Thus in this small number of patients

there appeared to be increased activity and zest in life associated with the feeding of glutamic acid. Whether or not the same conclusions would be revealed by the examination of a larger number of patients can be decided only by further work."

Associated with Dr. Himwich in the study were Dr. K. Wolff of the Menninger Foundation, Topeka, Kans., and Drs. A. L. Hunsicker, S. C. Allen and William A. Himwich of the Galesburg institution.

Science News Letter, May 22, 1954

Double duty limestone, which costs the farmer less because it is first used in steel-making, is just as good as agricultural limestone on certain soils.

SCIENCE NEWS LETTER

VOL. 65

MAY 22, 1954

NO. 21

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N. St., N. W., Washington 6, D. C., No. 17-2255. Edited by WATSON DAVIS.

Subscription rates: 1 yr., \$5.50; 2 yrs., \$10.00; 3 yrs., \$14.50; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

Change of address: Three weeks notice is required. When ordering a change please state exactly how magazine is now addressed. Your new address should include postal zone number if you have one.

Copyright, 1954, by Science Service, Inc. Reproduction of any portion of SCIENCE NEWS LETTER is strictly prohibited. Newspapers, magazines and other publications are invited to avail themselves of the numerous syndicate services issued by Science Service. Science Service also publishes CHEMISTRY (monthly) and THINGS of Science (monthly).

Printed in U. S. A. Entered as second class matter at the post office at Washington, D. C., under the act of March 3, 1879. Acceptance for mailing at the special rate of postage provided for by Sec. 3440, P. L. and R. 1948 Edition, paragraph (d) (act of February 28, 1925, 39 U. S. Code 285), authorized February 28, 1950. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to Periodical Literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 1 E. 54th St., New York 22, Eldorado 5-5666, and 435 N. Michigan Ave., Chicago 11, Superior 7-6048.

SCIENCE SERVICE

The Institution for the Popularization of Science organized 1921 as a non-profit corporation.

Board of Trustees—Representatives of the American Association for the Advancement of Science: Karl Lark-Harowitz, Purdue University; Kirtley F. Mather, Harvard University; Paul B. Sears, Yale University. Representatives of the National Academy of Sciences: Homer W. Smith, New York University; Edward U. Condon, Corning Glass Works; Harlow Shapley, Harvard College Observatory. Representatives of the National Research Council: Duane Roller, American Association for the Advancement of Science; Ross G. Harrison, Yale University; Leonard Carmichael, Smithsonian Institution. Representatives of the Journalistic Profession: Neil H. Swanson, Baltimore, Md.; O. W. Riegel, Washington and Lee University; Michael A. Gorman, Flint Journal. Representatives of the Scripps Estate: Charles E. Scripps, Cincinnati, Ohio; Edward J. Meeman, Memphis Press-Scimitar; John T. O'Rourke, Washington Daily News.

Officers—President: Leonard Carmichael; Vice-President and Chairman of Executive Committee: Charles E. Scripps; Treasurer: O. W. Riegel; Secretary: Watson Davis.

Staff—Director: Watson Davis. Writers: Jane Stafford, Marjorie Van de Water, Ann Ewing, Allen Long. Science Clubs of America: Joseph H. Kraus, Margaret E. Patterson. Photography: Fremont Davis. Sales and Advertising: Hollis Jenkins. Production: Priscilla Howe, Interlingua Division in New York; Alexander Gode, Hugh E. Blair, 80 E. 11th St., Gramercy 3-5410.

MEDICINE

Vitamins Help Keep Alcoholics On Wagon

► SOME OLD and some modern notions about health are evaluated and somewhat debunked in reports to the *Journal of the American Medical Association* (May 8).

Large daily doses of multiple vitamin preparations will help some alcoholics stay on the wagon but, on a group basis, results of diet supplement treatment of alcoholism are somewhat disappointing. The results, however, are favorable enough to warrant further research, Drs. Martha F. Trulson, Robert Fleming and Fredrick J. Stare of Harvard School of Public Health and Medical School and Peter Bent Brigham Hospital, Boston, reports.

Estrogenic hormone creams do not improve the appearance of a middle aged woman's skin any more than an ordinary softening or "night" cream does. Both kinds of creams did bring noticeable improvement in the appearance of the skin in women with dry skin at the start of the experiment. These findings were made by Dr. Howard T. Behrman, New York skin specialist, on 27 women who, every night for three months, used a hormone cream on one side of their faces and a plain emollient cream on the other.

The expectant mother does not have to eat for two, but she should have a well balanced diet with enough but not an excess of dietary essentials, Dr. Frank E. Whitacre of Nashville, Tenn., advises.

Science News Letter, May 22, 1954

PSYCHIATRY

Love Life Possible For Those Over 80

► A HAPPY love life is possible for old people and probably good for them, it appears from reports to the American Psychiatric Association meeting in St. Louis.

"People over 80 may fall in love and enjoy love relationships," Dr. David Cole Wilson of the University of Virginia Hospital, Charlottesville, declared.

"Indeed, a lack of sexual outlets causes a good deal of disturbance among old people, especially older women," he stated.

People may grow old but they do not necessarily have to become infirm, confused and show mental decay, he said, calling this "one of the most stimulating pieces of news arising from medical knowledge."

Most older people are prone to have accidents. This, Dr. Wilson believes, is because they lack interest in life. Men have motor accidents and women suffer from falls.

Older people become more understanding, less rigid and do not decay into senility when they keep active and continuously undertake something new, he finds.

Mental diseases, especially those primarily emotional, when they develop in the aged, Dr. Wilson said, seem to prolong their lives.

Science News Letter, May 22, 1954



70-PASSENGER MODEL—An artist's conception of the four-motored helicopter planned to carry 70 passengers. A two-place prototype, designed for increased stability and safety, is to be tested soon.

AERONAUTICS

Four-Rotor Helicopter

► A FOUR-ROTOR helicopter is close to solving two of the biggest headaches in helicopter design, inherent instability and small center of gravity travel.

The small high-speed rotors, situated like bedposts at the four corners of the aircraft, will cut down vibration and provide better handling qualities, David H. Kaplan, 30-year-old president of Convertawings, Inc., stated.

Just as the two-rotor helicopter increased stability of the familiar single-rotor craft and permitted larger cargoes, this helicopter is designed to increase lateral, as well as longitudinal, stability and to permit greater utility and safety.

"The use of four rotors for support in combination with multiple power plants makes possible a tremendous stride toward complete safety in flight," stated the design engineer. "A safe landing is feasible even in the event of structural failure of a rotor coupled with the ability of a four-engine machine to continue a vertical climb if one of the engines fails."

The thin short blades and hubs are new designs made with an eye to future mass production methods. Fewer moving parts are needed because many complicated control mechanisms so prevalent today are eliminated with the use of multiple rotors.

The blades, of solid 24 ST aluminum extruded like toothpaste, are only 3.75 inches wide. This permits the higher forward flight tip speeds sought by the helicopter industry.

The small two-place prototype now under construction is driven by two piston engines. A more powerful model that can carry up to 70 passengers is under development with four engines. Future turbine powered models with thrust augmentation will provide for growth of the design to meet increasing performance requirements.

First tests of the four-rotor helicopter are expected to be made this month at Zahns Airport, Amityville, L. I., where Convertawings, Inc., is located.

Science News Letter, May 22, 1954

TECHNOLOGY

Plaster of Paris Molds Cut Aluminum Parts Cost

► SMALL, INTRICATE aluminum parts now can be cast in plaster of paris molds to eliminate more costly machining methods.

A. B. Norton, general manager of the Aluminum Company of America's casting division, said that aluminum and magnesium parts formerly impossible to produce by casting methods now can be turned out faster, cheaper, and with such perfection as to require little or no subsequent machining.

Plaster of paris molds have long been used in the casting of aluminum. Until the recent improvements of the process were made, however, the method was often too costly for small intricate parts.

Science News Letter, May 22, 1954

AGRICULTURE

Use Farm By-Products

An astounding number of products can be made from plants that grow in the soil. The problem is to use them at a profit in competition with other sources of raw materials.

► ON THE farms of America there are materials which, if they could be utilized, would be worth much as industrial raw material. They would add to the farmer's income.

These are farm wastes. Perhaps it would be better to call them "residues" or "by-products." There are substantial tonnages on our fields that cannot now be used, either because we do not know enough to do so or because it is too expensive to attempt to gather and process these low-grade materials.

This problem of wastes or residues is quite distinct from the surpluses of conventional agricultural products, such as wheat, cotton, milk, etc., which have been purchased by the Government and stored in order to support farm prices.

Use of these farm wastes has long been a dream of the chemist who has looked to agriculture for his new, and perhaps cheaper, raw materials.

An astounding number of products can be made from plants that grow in the soil. The difficulty is not in using them chemically or industrially, but doing it at a profit in competition with other sources of the raw materials.

Motor fuel can be made from corn. Paper and wallboard can be made from corn stalks.

In the case of corn converted into alcohol and used in automobile engines, this grain is in competition with the oil wells of the world. The price of corn stands in the way unless the price is disastrously low to the farmer.

In the case of paper making, corn stalks must compete with forests in which the cellulose is included in large, easily-handled logs that are in concentrated and plentiful supply, despite the large demands upon our forests.

An active group of scientists and technologists have considered the industrial utilization of farm products for about two decades. At the recent meeting of the National Farm Chemurgic Council's Conference at Memphis, Tenn., Drs. K. Starr Chester and Warren C. Ellis Jr. of Battelle Memorial Institute, Columbus, Ohio, observed that biological residues, waste materials from the farm, are widely scattered and the job is to find some economical means of assembling them at a central point where they can be "processed."

Shipping bulky materials to the factory where they will be used is one heavy expense. The Battelle Institute scientists suggest that the farm waste be put through one or two processing stages locally to decrease its bulk and increase its value to the

point that it would be economical to ship it. Equipment already in existence might be used. For instance, cotton gins and canneries could be used during their off-seasons.

Railroads could cooperate by making available portable, semi-processing units that could be shifted from place to place on railway cars.

Important utilizations of agricultural residues that have proved practical have, in most cases, relied upon the material being brought to some one place as a consequence of a major operation. For instance, the bagasse material remaining after the sugar has been squeezed out of sugar cane is conveniently at the sugar mill. Oat hulls used in large quantities for making the basic chemical, furfural, are assembled at a central point in connection with oatmeal cereal manufacture.

All of the residues or wastes are not located on the farm. The scientists suggest that garbage and sewage can be utilized economically if we use our ingenuity. Such materials could be rapidly converted into the high-quality humus that the soils of many of our farms need in increasing amounts.

Lignin is another waste material of enormous tonnage which is now largely wasted. This is a major ingredient of wood and a

by-product of paper manufacture. Success has not yet come to research attempting to decompose it chemically or by bacterial action, but some day lignin may well be a very valuable raw material.

Science News Letter, May 22, 1954

AERONAUTICS

Navy Trains Men to Use Supersonic "Sparrow I"

► THE NAVY is training its men to use the supersonic "Sparrow I," a deadly air-to-air guided missile that can be launched from the F3D Skynight fighter to seek out and kill enemy planes.

Bristling with swept-back fins, the sleek, needle-nosed missile is slated for operational use with carrier-based jet planes of both Atlantic and Pacific fleets.

Volume production of the Sparrow I has begun at the Sperry Gyroscope Company's new plant at Bristol, Tenn. The supersonic Sparrow represents the end product of 100 prototype designs and tests.

The rocket-powered missile can be controlled accurately when fired from a speeding jet plane. It is fully maneuverable at supersonic speeds, Sperry reports. The Sky-night can carry at least four of the missiles under its wings.

The Sparrow I is one of a family of guided missiles bearing the same name. The Sparrow II and Sparrow III are both in production, according to a Defense Department list of 550 weapons and other items. They are also air-to-air missiles.

Between 1948 and 1951, more than 100 prototypes were critically test-flown before the Navy settled on the production models.

Science News Letter, May 22, 1954



AIR-TO-AIR MISSILES—This is the first photograph of the Sperry Sparrows, air-to-air guided missiles that hurtle toward their targets at supersonic speeds. They are poised on wing racks of the Navy's twin-jet night fighter, the Douglas F3D Skynight.



TWEEDLEDUM AND TWEEDLEDEE—A very unusual pair of Paracas post-fired ceramic pots, which marked the Paracas culture in the Nazca and Ica Valleys, are shown here. The art is unique because the colors of resin, or pitch, were applied after the pot was fired. In all later cultures, the colors are applied before the pot is fired.

ARCHAEOLOGY

Human Heads as Trophies

► **HUMAN HEADS** were carried as grizzly trophies by a now extinct Peruvian people, the Nazcas, which flourished about the time of Christ.

This was shown by excavations made by Dr. William Duncan Strong of Columbia University and described at the Society for American Archaeology meeting in Albany, N. Y.

The explorations laid bare the whole broad panorama of cultural development in ancient Peru from about 6,000 to 7,000 years ago to just before the coming of the Spanish in 1532. The most ancient peoples were obsidian workers who knew neither agriculture nor pottery making.

An important find of Dr. Strong's expedition of last year was that the famous Paracas people, noted for their mummies, exquisite textiles and beautiful pottery, were not only farmers, warriors and artists, but great builders of temples and towns. People who lived later in Peru's Nazca region were even greater builders.

Dr. Strong found remains of the Paracas in a region occupied by the Nazca. Paracas articles underlay the remains of the Nazca, showing that the Paracas people were older and ancestral to the Nazca.

The Nazca warriors were head hunters. They took the heads of vanquished enemies, removed the flesh under the skin and replaced the skin over the cleaned-out skull. They held the lips together with two cactus

thorns, as did the Jivaro warriors who shrunk heads for trophies a thousand years later. The Nazca warrior used his sling to hang the human heads around his own neck as proof of his military skill.

Some of these grizzly trophies were found by Dr. Strong's party buried with the warrior.

The culture of the Nazca people faded out before the invasion of Tiahuanaco people from the Andean Highlands to the east. Their graves were also uncovered by Dr. Strong and they were found to contain ornaments of silver and gold.

Dr. Strong's party worked in cooperation with the Regional Museum of Ica. Some of the finer pieces he brought back to New York are now being shown in the Museum of Modern Art there.

Science News Letter, May 22, 1954

INVENTION

Tea Bag Holder Receives Patent

► **FOR THAT** afternoon spot of tea, Joseph Scheidt and Lester Allen Teegardin of Streator, Ill., have invented a combination tea bag holder, stirrer and squeezer. It has a hook to catch on the teacup's side, and a spring clasp for holding the tea bag's string. They received patent 2,678,000.

Science News Letter, May 22, 1954

BACTERIOLOGY

Germicide Evaluation Simulates Wounds

► **A METHOD** of evaluating germicides that simulates actual treatment of wounds has been developed by Dr. A. J. Salle, University of California at Los Angeles bacteriologist.

Bits of living heart tissue from chick embryos are placed in several test tubes with bacteria commonly found in wounds. After the bacteria have invaded the tissue, just as they do in infections, various dilutions of the germicide are added. Then the germicide is washed off, and the tissue is placed in flasks and observed.

No bacterial growth means all the bacteria have been killed. If the tissue does not grow, it indicates the germicide is toxic to tissue.

By comparing the highest dilution that still is toxic to tissue with the highest dilution that kills all the bacteria, Dr. Salle arrives at the numerical value. He calls it the toxicity index.

An index less than one means the germicide is more toxic to bacteria than tissue. The smaller the index, the more nearly perfect the germicide.

Iodine with a toxicity index of 0.1 and mercuric chloride with .83 are the most effective germicides evaluated by the new method.

The commonly employed method of germicide evaluation, the phenol coefficient test, does not consider tissue effect. It merely compares a substance's germ killing ability with that of carbolic acid.

The new method is a refinement of techniques he developed several years ago.

Science News Letter, May 22, 1954

PHYSICS

"Super-Radium" From Waste of Atomic Plants

► **A "SUPER-RADIUM"** for use in treating cancer is a by-product of the atomic energy program.

To join cobalt 60, there is now cesium 137. Oak Ridge National Laboratory has produced a little more than two ounces of this powerful radioactive substance, contained in fission products of the extremely "hot" spent fuel of atomic piles.

The big job has been to separate out the exploding atoms of this element. The two ounces plus of cesium 137 so far produced have more radiation energy than a pound of radium which, at current rates, is worth more than a million dollars.

In a few months, the radioactive cesium will be put to work actually treating cancer patients. Now it is being studied further in the laboratories.

Cesium lasts longer than cobalt 60, but not nearly as long as radium. Radiation from cesium 137 is reduced to half in 37 years, compared with 5.9 years for cobalt 60 and almost 1,600 years for radium.

Science News Letter, May 22, 1954

TECHNOLOGY

Resin-Soaked Paper Upgrades Poor Lumber

► A SINGLE sheet of resin-soaked paper glued on each side of a white pine board can "upgrade" the lumber and make it more readily acceptable for many uses.

Developed by the U. S. Forest Products Laboratory in Madison, Wis., the use of paper overlays on lumber is expected to be put to use quickly by lumber producers in order to make good lumber out of imperfect trees.

Research by Bruce G. Heebink, laboratory engineer, revealed that the paper overlays both hide blemishes in the lumber and also greatly reduce swelling when the board absorbs moisture.

"In a lot of uses, blemishes in wood do not really matter, except for looks," said Dr. J. A. Hall, laboratory director. "So if we can cover them up, we have a more readily accepted material for construction lumber, cabinets, furniture parts, and so on."

"Paper overlays treated with waterproof synthetic resins and glued to the wood with waterproof glues can do this. The fact that they also reduce swelling, however, promises to make paper-overlaid lumber not just a substitute for high-quality clear lumber, but a high-quality product itself."

Dr. Hall pointed out that there is a need for "upgrading" in lumber because much of the best timber in most of the country has been used. This leaves young trees with generally knottier lumber, and old trees that are apt to have unsightly imperfections and would therefore be only common grade lumber.

Science News Letter, May 22, 1954

BIOCHEMISTRY

Cafeteria Style For Rat Poisoning

► AN OLD lettuce crate, properly baited, has proved one of the most effective tools for killing rats without risking the lives of household pets, experiments by Prof. Karl Paul Link, University of Wisconsin biochemist, show.

Prof. Link headed the research team that discovered Warfarin, the famous rat killing compound. For the past several years he has been conducting experiments to find the best way of getting rats to accept poisoned bait set out for them.

A lettuce crate with the bottom removed, and with both poisoned dry bait and water set inside it, proved to be the best of all the baiting stations he tried. A rat, he explained, likes water with his food, and likes to feel protected while eating his meal. The lettuce crate offers both these advantages while, at the same time, giving him a number of ways to escape through the three-inch-wide spaces between the boards at the ends. Also, a crate is a familiar object to the rat and he feels quite at home in it.

The use of a crate has the additional ad-

vantage of keeping larger household pets away from the bait.

Placing the bait in three small containers will help make it attractive to the rat, Prof. Link said, because a rat distrusts a single source of food and likes to nibble at one and then go on to another. Ground whole yellow corn proved to be the best of all the baits tried.

The crate, with the bait and water inside, should be placed over or as close as possible to the rat's hole, to attract him before he finds other sources of food.

Science News Letter, May 22, 1954

TECHNOLOGY

Listen in on Termite Footsteps, Jaw Noises

► TERMITES CAN be located by a compact sound detection device that records their footsteps, clicking noises made by their jaws, and a rhythmic tom-tom noise which they apparently use as a method of communication.

The sensitive device was developed by Roy Pence of the University of California at Los Angeles in collaboration with David Weems.

The instrument consists of a tiny microphone, "hip-pocket" power unit and earphones. Its compactness is especially suited for working in the tiny nooks and crannies "termite detectives" must probe. The designers say it may eliminate destructive "bore-and-chisel" methods now necessary to detect termites.

Termites apparently communicate by means of strange sounds. One such sound involves a rhythmic tom-tom like beat probably originated by soldier termites on sentry duty and relayed by other termites in the manner of a "jungle grapevine." It may be a danger signal, and is thought to be made by the termites hitting their hard heads on wood.

Another unique sound is a clicking noise. This occurs when sentry termites posted at entrances to the colony thrust their heads through the entrances at the approach of danger and snap their jaws.

Science News Letter, May 22, 1954

VITAL STATISTICS

U. S. Women Now Top Biblical Lifespan

► THE AVERAGE length of life expected at birth for American women is now 71.8 years, exceeding the Biblical lifespan of three score years and ten.

The average for men in the United States is 65.9 years.

The average for both sexes, 68.5, is a record high and represents a gain of nearly four years in the past 10, statisticians of the Public Health Service, U. S. Department of Health, Education and Welfare, point out in announcing the new life tables.

Science News Letter, May 22, 1954

IN SCIENCE

PSYCHIATRY

Elderly Need Supplies To Their Self Esteem

► PRESCRIPTION TO ward off depression in elderly persons: Activities in which they can achieve or create something, thereby building up their self esteem.

This Rx might be written on the basis of findings reported to the American Psychiatric Association meeting in St. Louis by Dr. Ewald W. Busse of Duke University, Durham, N. C. It came from a study of almost 350 people aged 60 or older.

Work alone is not the solution to the problem of the depressions of elderly persons.

"Purely 'receiving' pastimes, such as listening to the radio, are not as good as productive activities, but a combination of the two is most desirable," Dr. Busse and associates found.

The elderly, their study showed, tend to be "misers" of their affections, because they are fearful that if they give their affection away, they will not receive any in return.

Associated with Dr. Busse in the study were Drs. Robert H. Barnes and Albert J. Silverman of Duke, Dr. Margaret Thaler, Denver, and Dr. Laurence L. Frost, Bethesda, Md.

Science News Letter, May 22, 1954

BACTERIOLOGY

Radioactive Phosphorus Detects Flaws in Germs

► RADIOACTIVE PHOSPHORUS is helping detect fatal flaws and consequent vulnerable spots in disease germs of the parrot fever and virus pneumonia group, Dr. James W. Moulder of the University of Chicago told the Society of American Bacteriologists meeting in Pittsburgh.

The germs have a diameter of about a fifty-thousandth of an inch. They are between viruses and bacteria. They are like bacteria in their response to antibiotic drugs. They are like viruses in lacking some enzymes essential for their life chemistry. Unlike viruses, however, they do have some enzymes of their own.

Once inside the cell of an animal or man, they progress in four major stages. The initial small body doubles in size, then splits several times to form a cluster. The clusters clump in a sac inside the cell. Then, 48 hours after the start of the process, the sac splits, breaks up the cell it infects, and releases a host of new germs to infect other cells.

For these and similar studies, Dr. Moulder was awarded the Eli Lilly and Company award in bacteriology and immunology.

Science News Letter, May 22, 1954

ICE FIELDS

MEDICINE

Warn of Brain Damage After Heart Arrest

► MORE AND more patients are being saved from death only to lead a helpless child existence the rest of their lives, four Los Angeles physicians warn, in effect, in the *Journal of the American Medical Association* (May 8).

The patients are those whose hearts stop beating and who are revived by the dramatic procedure of opening the chest and massaging the heart until it starts beating again.

The trouble is that in such cases the brain has been deprived of oxygen so long it has been irreversibly and severely damaged, and cannot function normally.

In the Veterans Administration Neuropsychiatric Hospital in Los Angeles are three such patients, Drs. Richard V. Freeman, Louis M. Berger, Sidney Cohen and Wilbur A. Selle report.

Science News Letter, May 22, 1954

ARCHAEOLOGY

Discover Lost People Who Never Had Toothache

► A VANISHED people who once lived on Japan's north coast bordering the Okhotsk Sea never suffered from tooth decay.

The Society for American Archaeology meeting in Albany, N. Y., was told that this ancient people knew how to make and use knives, forks and spoons. They sewed with needles, cut wood with wedges and axes, and dug in the ground with a hoe-like tool. They also left behind flakes of stone that may have been used as razors. Yet agriculture was unknown among them, and they lived on fish and wild animals.

Discovery of remains of the people known as the Okhotsk Culture was reported by Prof. S. Kodama of Hokkaido University and Lt. Col. Howard A. MacCord, U. S. Army. Since they are both now in Japan, the report was read by Dr. Ralph Solecki of the Smithsonian Institution.

Sites of the Okhotsk people are found all around the Okhotsk Sea, in Hokkaido, northern Japan; the Kurile Islands and southern Sakhalin, north of Japan; and there may be Okhotsk sites in Kamchatka, although that has not yet been proved.

Bones found show that they were a broad-headed people with long, broad features, high cheekbones and narrow noses. Tooth decay was absent although the teeth were badly worn. The skull and facial features differ markedly from the Ainu people who later occupied the same site, and also from the Japanese and the Tungusic tribes of Sakhalin and Manchuria. However, similar

features are found in such northern peoples as the Chukchis and the Aleuts.

Where the Okhotsk people came from and what eventually happened to them is a puzzle still to be solved through later finds, although the scientists suggest that they may have been absorbed by the Ainu people. If that happened, however, the Ainu did not take over the knowledge of how to make pottery, because this later people did not make or use pottery.

Science News Letter, May 22, 1954

PHARMACOLOGY

Worthless Drug Found Useful After 100 Years

► AN OPIUM chemical known for more than a century, and generally considered worthless for all that time, has now found a medical use. It stops coughs and probably will be put into cough drops and syrups before too many more months.

The chemical is narcotine. Unlike other opium chemicals, it does not stop pain and it does not have any sleep-inducing effect. And, fortunately, it does not have the power of other opium drugs to make addicts of persons taking it.

It is the first non-addicting opium chemical with a specific anti-cough effect. A synthetic drug, related to a synthetic pain-killer, has also been found to have anti-cough action without having any pain-relieving action. Discovery of these two drugs has overthrown the long-held assumption that the cough-stopping action of narcotic drugs, such as codeine, was related to the pain-killing action.

Narcotine's cough-stopping action was discovered in animal studies by Dr. Charles A. Winter and Lars Flataker of the Merck Institute for Therapeutic Research, Rahway, N. J.

Trials in human coughers by Harvard Medical School scientists among others showed that narcotine had definite anti-cough effect and acted rapidly.

The animal studies showed it to be as good as another opium chemical, codeine, for stopping coughs, and the trials with humans seem to bear this out. Narcotine is now being made available to drug manufacturers for use in cough medicines.

Science News Letter, May 22, 1954

BACTERIOLOGY

Germ Poisons Make Polio Paralyze

► A NON-PARALYZING polio infection so mild it might escape detection could be transformed into a full-blown paralyzing attack of the disease by infection at the same time with diphtheria germs or some others that produce nerve-attacking poisons.

Evidence for this from mouse studies was reported by Dr. Leonard F. Laskowski Jr. of Saint Louis University, St. Louis, at the meeting of the Society of American Bacteriologists in Pittsburgh.

Science News Letter, May 22, 1954

TECHNOLOGY

Automatic Plant To Handle Acetylene

► A PLANT to handle the highly explosive gas acetylene as the source of polyvinyl blood extender and other rare chemicals will be started soon in Calvert City, Ky.

Operation of the plant will be controlled automatically from behind barriers of steel and concrete, and will be monitored by fire-proof and explosion-proof instruments.

Discovery that acetylene can be forced to yield many new chemicals by heating it under great pressure gave the Germans an additional source of chemicals to supplement their limited supply of petroleum during World War II.

Access to the processes developed by the Germans, extended by research in experimental plants in America, has increased the number of chemicals useful in synthetic rubber, plastics and insulation materials which can be made from acetylene. These, in addition to the polyvinyl blood extender known as PVP, will be produced in the new plant of General Aniline and Film Corporation.

The new chemicals have so far been produced by General Aniline at its Central Research Laboratory, Easton, Pa., and its pilot plant at Linden, N. J. The Calvert City plant will be in operation in 1955, it is estimated.

Science News Letter, May 22, 1954

AGRICULTURE

Macadamia Promising As California Crop

► A VALUABLE new crop will be added to California's agriculture, already the most highly-diversified in the world, if it lives up to the promise shown in experiments at the University of California at Los Angeles.

This is the macadamia, a tasty, high-oil-content nut native to Australia. Introduced in Hawaii some time ago, it has proved a commercially valuable crop there.

Propagation of the macadamia has been carried out successfully in a study, under the direction of Dr. C. A. Schroeder, that included grafting of older trees in the field and of nursery stock. The research has also included importation and testing of varieties of the nut from Hawaii and Australia, and tests of local seedling trees.

One variety has an unusually high oil content, up to 70%. This results in better storage and retention of higher quality in commercial processing than with varieties of lower oil content.

The macadamia has about the same frost tolerance as the avocado. Adapted to a wide range of soils, it has a high resistance, possibly a complete immunity, to avocado root rot. This may make it a suitable replacement crop for avocado orchards rendered valueless by the disease. The California Avocado Society is cooperating in the study.

Science News Letter, May 22, 1954

ASTRONOMY

Solar Eclipse Soon Visible

**Mercury, Venus, Mars and Saturn shine in evening sky.
Partial eclipse of sun will be visible over most of North America.
Path of totality sweeps over more land than water.**

By JAMES STOKLEY

► MARS, NOW making its closest approach in many years, is joined by three other planets in the June evening skies. Indeed, of the five naked-eye planets, only Jupiter, so prominent during evenings of the past spring, has now passed from view.

An added attraction on June's all-star program, there is a total eclipse of the sun, first to be seen in the United States and Canada since 1945.

The eclipse occurs on June 30. Only along a path starting near Minneapolis, then proceeding to the northeast, will the sun be totally obscured, but over most of Canada and all of the U. S. except the southwest there will be a partial eclipse, early in the morning.

Brightest of the month's planets is Venus, which remains visible in the western sky for about two hours after sunset. It is so brilliant, of magnitude minus 3.4, that it appears well before any other planet or any star. Thus, it can easily be identified.

Mars in Opposition

On June 24, Mars will be in opposition, which means that it is directly opposite to the direction of the sun. Hence it rises at sunset and sets at sunrise, so it is visible all through the night.

At this time Mars will be at the comparatively close distance of 40,160,000 miles. In early July, however, it will be nearly a half million miles closer still. Mars will be more fully discussed in next month's article.

Our third planet is Saturn, shown on the accompanying maps in the constellation of Virgo, the virgin, high in the south. This is where it will be about 10:00 p. m. your own kind of standard time at the beginning of June, and an hour earlier on the 15th. (Add one hour if you are on daylight time).

Saturn is about three-fourths again as bright as the star Spica, just to the right.

Mercury, the fourth June planet, will make a brief appearance in the evening sky for a few days around the ninth, when it will be farthest east of the sun. Thus it will remain above the horizon for a short while after the sun has gone down, and may be glimpsed very low in the west as twilight falls.

Mercury will be a little lower and to the right of Venus, as well as considerably fainter. Since it will set before the sky is fully dark, one should look carefully to locate it. Of course, a clear western horizon will be essential.

Among the stars of June, which are distant suns and, unlike the planets, shine by their own light, Vega is the brightest. It is high in the eastern sky, in the constellation of Lyra, the lyre. Just below it is the figure of Cygnus, the swan, of which the northern cross is part, and where we find another first-magnitude star, Deneb. To the right of this group is Aquila, the eagle, with Altair.

Arcturus, in Bootes, the bear-driver, is high in the south, while Regulus can be seen in the west, in Leo, the lion. This star is part of a sub-group called the sickle, which is divided between our northern and southern maps. Low in the south Antares now appears, in Scorpius, the scorpion.

Brief Observation Time

When the moon's shadow touches earth as the sun is rising in northeastern Nebraska on June 30, astronomers, both amateur and professional, will be poised along a 9,000-mile path crossing North America, Europe and Asia, ready to make their observations during the fleeting moments when the shadow passes their stations.

For this will be a total eclipse, with the moon's dark disk hiding the bright globe of the sun, making possible many observations that can be made at no other time.

Total eclipse observations are generally for the purpose of learning more about the sun, for example, its corona. This is its outermost layer, and it can only be observed fully at a total eclipse, when the suppression of the glare from the solar disk permits it to be seen.

This eclipse, however, will be used to learn more about the earth itself, particularly to get accurate distances between North America and Europe. Although both

Europe and North America have been mapped with great precision, and the distances between points inside each continent may be accurately determined, there remain small uncertainties in getting distances between points on one continent and those on the other.

The weapons of modern warfare require that such distances be known with the greatest possible precision. If wars of the future are to be fought with guided missiles, provided with robot navigators and capable of carrying an atomic or hydrogen bomb across an ocean, those who start them on their deadly journeys must know exactly the relative position of their own base and the target.

More Accurate Distances

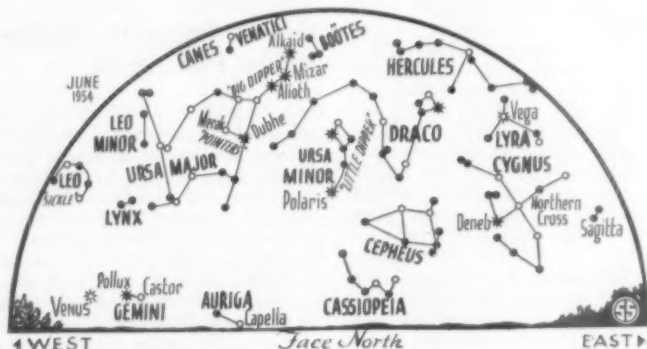
Such considerations suggest why the U. S. Air Force, through the Cambridge Research Center, is sponsoring an elaborate series of eclipse observations, in Canada, Europe and Asia, to time the moon's shadow as it rushes past.

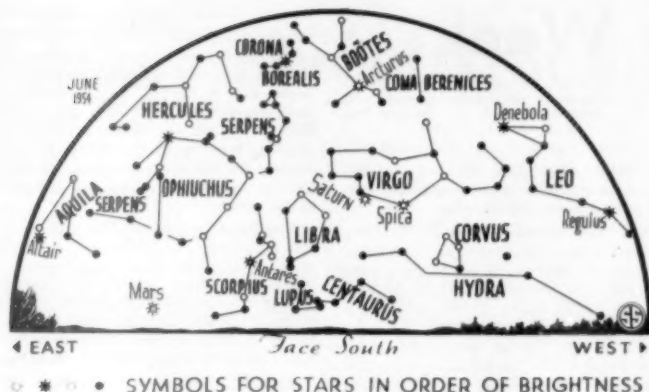
By correlating these data, since the relative motions of the moon and earth are known, it may be possible to obtain distances between North America and Europe far more accurately than ever before. Not until June 14, 2151, will another total eclipse path span North America and Europe in a comparable manner.

Because such a large portion of the earth's surface is covered by water, the average eclipse path is mainly over the oceans, and sometimes touches scarcely any land. This one is unusual, since it passes over more land than water. Some of the land that it traverses, as in Canada, Labrador and Greenland, is largely uninhabited.

However, other parts, in the United States, southern Canada, Scandinavia, Russia, the Middle East and India, are thickly inhabited, and this eclipse may well be seen by many millions of people.

Although the path of the shadow begins in Nebraska, the total eclipse there will





SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

occur immediately after sunrise, and it will hardly be as favorable a location as one father east. Minneapolis, the largest city in the path, will be somewhat better. There the moon will start to cover the sun before sunrise, so when the sun is first seen it will be partially eclipsed.

At Minneapolis, the total eclipse will occur at 5:08 a.m. CST, and the sun will be about five and one-half degrees above the horizon. At this position the path of the shadow will be about 72 miles wide, so places to the north and south of the Twin Cities will likewise have a chance of seeing the total eclipse. The duration, however, will be less than 76 seconds on the central line, which passes through Minneapolis.

Finale: Sunset in India

From Minnesota, the path, getting somewhat wider, passes across the northern peninsula of Michigan, Lake Superior and Canada. It crosses James Bay at the southern end of Hudson Bay. Then it goes to Labrador where the total phase occurs at about 7:55 a.m. Newfoundland time. Now the path is 88 miles wide and the sun will be hidden for about 116 seconds.

After crossing southern Greenland and just skirting Iceland, the path heads southward. It traverses the Faeroe Islands, Norway, Sweden, Lithuania, the Ukraine and Georgia in the U.S.S.R., the Caspian Sea, Iran, Afghanistan, Pakistan and India.

The moon's shadow leaves earth as the sun is setting near Jodhpur, so that a little less than three hours will have been required for its trip from Nebraska to India.

Over a much larger area, a partial eclipse, where the moon will only partly cover the sun's disk, will be seen. This will include all of Europe, western Asia, north Africa, most of Canada and the United States, except the southwestern part. Of course, the nearer one is to the central line, the path of totality, the more of the sun will be covered.

The following table indicates the times of the partial eclipse for a few typical places in the United States, and the percentage of the sun's diameter that the moon will cover.

	Beginning a.m.	Ending a.m.	Per Cent
Atlanta, Ga.	—* EST	6:47	68
Boston, Mass.	5:07 EST	7:02	75
Buffalo, N. Y.	5:08 EST	7:01	83
Chicago, Ill.	—* CST	5:59	90
Cincinnati, Ohio	—* EST	6:55	81
Cleveland, Ohio	5:08 EST	6:59	83
Denver, Col.	—* MST	5:00	48
Des Moines, Iowa	—* CST	5:59	95
Nashville, Tenn.	—* CST	5:51	76
New Orleans, La.	—* CST	5:43	60
New York, N. Y.	5:06 EST	6:59	74
Pittsburgh, Pa.	5:07 EST	6:57	79
Richmond, Va.	5:04 EST	6:52	70
St. Louis, Mo.	—* CST	5:55	85
Washington, D. C.	5:05 EST	6:55	73

(*For these locations, where no beginning time is given, the eclipse starts before sunrise.)

Even though the partial eclipse will be visible from much of the country, anyone within reach should try to get to the path of totality. Then, if it is clear, he will see the sun completely covered, so that the corona flashes out around it, and just to the west the planets Mercury and Venus will shine.

After the brief minute or so of totality, the narrow crescent of the solar disk will reappear and increase, as the moon moves off until the sun is once more shining unobstructed.

Celestial Time Table for June

June	EST	
2	11:11 a.m.	Moon passes Jupiter.
	3:21 p.m.	Moon passes Mercury.
3	6:05 a.m.	Moon passes Venus.
8	4:13 a.m.	Moon in first quarter.
9	2:00 a.m.	Mercury farthest east of sun.
11	10:00 a.m.	Moon farthest, distance 251,800 miles.
12	6:13 a.m.	Moon passes Saturn.
16	7:06 a.m.	Full moon.
17	2:31 a.m.	Moon passes Mars.
21	5:55 p.m.	Moon farthest north, summer commences.
23	2:46 p.m.	Moon in last quarter.
24	12:00 noon	Mars opposite sun.
27	5:00 a.m.	Moon nearest, distance 227,300 miles.
30	7:26 a.m.	New moon, sun eclipsed.
	1:00 p.m.	Jupiter in direction of sun.

Subtract one hour for CST, two hours for MST, and three for PST.

Science News Letter, May 22, 1954

PHILOSOPHICAL LIBRARY BOOKS

AN INTRODUCTION TO POLITICAL PHILOSOPHY by A. R. M. Murray. After an introduction explaining the nature and purpose of philosophy, Dr. Murray devotes twelve chapters to a critical examination of the principal theories advanced by political philosophers from Plato to Marx. **\$4.75**

DICTIONARY OF EUROPEAN HISTORY by William E. Roeder, with an Introduction by Harry Elmer Barnes. This book provides concise and reliable information concerning most of the events and prominent personalities from 500 A.D. to the present. While it deals primarily with the data of European history, there are references to the more important happenings and figures in the history of the colonies, of the Western Hemisphere and the Near and Far East. **\$6.00**

THE JUDGMENT OF HISTORY by Marie Collins Swabey. The various approaches to history, common sense, scientific and philosophical are illustrated by critical analysis of Gibbon, Kant, Macaulay, Buckle, Parkman, Henry Adams, Charles Beard, Soviet history, Spengler, Toynbee and Whitehead. **\$3.75**

THE SOVIET IMPACT ON SOCIETY by Dagobert D. Runes. With an Introduction by Harry Elmer Barnes. In this volume the well-known philosopher examines the cultural and social changes brought about in the Western and Eastern world by the materialization of Marxist ideology. **\$3.75**

IN SPITE OF—Philosophy for Everyman by John Cowper Powys. This book is the latest of Powys's expositions in philosophy, written in his eightieth year. Its message is "Man, know thyself." It seeks to show how the individual, by acceptance of his lot in life, may enjoy being alive under any circumstances or conditions, in spite of all obstacles. **\$6.00**

HUMANISM AS A PHILOSOPHY by Corliss Lamont. Describes the way of life known as Humanism, a philosophy which sets up as the chief end of human endeavor the happiness, freedom and progress of all mankind. **\$3.75**

ESSAYS IN SCIENCE by Albert Einstein. An abbreviated edition of some of the papers of the distinguished physicist. **\$2.75**

NUCLEAR PHYSICS by Werner Heisenberg. This new work, by one of the outstanding physicists of our time, begins with a short and fascinating history of the views about atoms in antiquity and also of the development of atomic theory till the close of the nineteenth century. With 18 half-tone illustrations and 32 line illustrations. **\$4.75**

ENCYCLOPEDIA OF ABERRATIONS. Edited by Edward Podolsky, M.D. With a Preface by Alexandra Adler, M.D. This is the first systematic exposition of human aberrational behavior written for the intelligent layman as well as the expert in interpersonal relationships. **\$10.00**

THE JEALOUS CHILD by Edward Podolsky. The causes of jealousy in children are examined critically and discussed fully. Remedial measures are proposed which can be put to practical application by parents, teachers, psychologists and social workers. **\$3.75**

EXISTENTIAL PSYCHOANALYSIS by Jean-Paul Sartre. Translated and edited, and with an introduction by Hazel Barnes. Sartre here blends philosophy and psychology in presenting a new psychoanalysis based on the principles of existentialism. **\$4.75**

THE HAND PRODUCED BOOK by David Diringer. The author surveys the development of books from prehistoric times to our own day. Illustrated. **\$15.00**

A FREE SOCIETY: AN EVALUATION OF CONTEMPORARY DEMOCRACY by Mark M. Heald. This volume is a timely and comprehensive analysis of the doctrines of liberal democracy as a process of government and as a form of social relationships. **\$4.75**

THE LIFE AND WORK OF VAN GOGH by Carl Nordenfalk. The book contains a series of brilliant illustrations by Van Gogh, and an Introduction by his nephew. Illustrated. **\$6.00**

BERTRAND RUSSELL'S DICTIONARY OF MIND, MATTER AND MORALS. More than one thousand definitions and opinions of one of the most profound and controversial minds of our age from more than 100 books and papers of the 1950 Nobel Prize winner. **\$5.00**

MAIL THIS COUPON TODAY

PHILOSOPHICAL LIBRARY, Publishers

15 East 40th St., Desk 35, New York 16, N. Y.

Send books checked. To expedite shipment I enclose remittance \$.....

NAME

ADDRESS

• Books of the Week •

For the editorial information of our readers, books received for review since last week's issue are listed. For convenient purchase of any U. S. book in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N Street, N.W., Washington 6, D. C. Request free publications direct from publisher, not from Science Service.

ABNORMAL AND PATHOLOGICAL PLANT GROWTH: Report of Symposium Held August 3 to 5, 1953—A. H. Sparrow, Chairman—*Brookhaven National Laboratory, (Office of Technical Services, Dept. of Commerce)*, 303 p., illus., paper, \$2.10. Discussion of the papers is also included.

ADVANCES IN CANCER RESEARCH: Volume II—Jesse P. Greenstein and Alexander Haddow, Eds.—*Academic*, 530 p., illus., \$11.00. Intended as an annual chronicle of progress, and as a recurring stimulus to the work ahead. Discussing especially how cancers start and some of the remedies that stop or retard their growth.

THE AIRCRAFT YEAR BOOK 1953—Fred Hamlin and others—*Lincoln Press*, 463 p., illus., \$6.00. A reference book of facts and figures of the aircraft industry, including a "Who's Who" of aviation activities.

BUILDING BETTER FROM MODULAR DRAWINGS: The Modular Method in Building Construction—William Demarest, Jr.—*Govt. Printing Office, Housing Research*, 24 p., illus., paper, 20 cents. A new method of planning, using units of 4-inch cubes called modules, three of which add up to a foot. This avoids troublesome fractions and makes it possible to put together a construction easily and without error.

ELECTROMAGNETIC THEORY—V. C. A. Ferraro—*University of London-Athlone (John de Graff)*, 555 p., \$7.00. Lectures delivered at King's College, London.

ESTIMATION OF AVAILABLE PHOSPHORUS IN SOILS BY EXTRACTION WITH SODIUM BICARBONATE—Sterling R. Olsen, C. V. Cole, Frank S. Watanabe and L. A. Dean—*Govt. Printing Office, USDA Circular No. 939*, 19 p., illus., paper, 15 cents. A new method is here described.

THE FIRST BOOK OF CONSERVATION—F. C. Smith—*Franklin Watts*, 68 p., illus., \$1.75. A book for children showing the importance to each other of all of the earth's animals and plants, and what each of us can do to help maintain or restore nature's balance.

FOREIGN EXCHANGE IN THE POSTWAR WORLD—Raymond F. Mikesell—*Twentieth Century Fund*, 658 p., \$5.00. Analyzing the currency and exchange regulations of the principal countries and regions of the world. The defense of

the free world, the author believes, depends upon the creation of a payments mechanism that will permit unrestricted trade.

GENERAL CYTOLOGY—E. D. P. De Robertis, W. W. Nowinski and Francisco A. Saez—*Saunders*, 2d ed., 456 p., illus., \$7.75. Some chapters have been completely revised to keep up with the strides made in the science. A text for medical and biology students.

GEOLOGY OF THE PILOT MOUNTAIN AREA, VIRGINIA—Richard V. Dietrich—*Virginia Polytechnic Institute*, 32 p., illus., paper, 25 cents. There are no active mines or quarries in the area, but there are potential future sources for light-weight aggregate and ceramic clay as well as for building stone and silica.

HENRI POINCARÉ, CRITIC OF CRISIS: Reflections on His Universe of Discourse—Tobias Dantzig—*Scribner's*, 149 p., \$3.00. More than a biography or an analysis of this famous physicist's trend of thought, this book is intended to give the layman an understanding of Poincaré's contribution to modern physics.

HOW TO INSTALL AND SERVICE AUTO RADIOS—Jack Darr—*Rider*, 116 p., illus., paper, \$1.80. The auto-radio technician must make his sets work with practically no antenna, in the constant presence of a strong noise field, and under very severe jarring and jolting. Here are practical hints to aid him.

INDUSTRY AT THE BARGAINING TABLE: Critical Factors in Contract Negotiation—M. J. Doohar, Ed.—*American Management Association, Personnel Series Number 156*, 52 p., paper, \$1.25. Papers presented at the Midwinter Personnel Conference of the Association.

INORGANIC QUANTITATIVE ANALYSIS—Carroll Wardlaw Griffin—*Blakiston*, 2d. ed., 417 p., illus., \$4.75. A textbook with the emphasis on thoroughness.

MANAGEMENT OF THE MIND: How to Conquer Alcohol and Other Blocks to Successful Living—Edward J. McGoldrick, Jr.—*Houghton Mifflin*, 261 p., \$3.00. Intended for those who have lost control over themselves and their world, as a guide to help them regain mastery. Growing out of the author's own problems and the solution he found for them.

NATIONAL FAMILY SURVEY OF MEDICAL COSTS AND VOLUNTARY HEALTH INSURANCE: Preliminary Report—Odin W. Anderson—*Health Information Foundation*, 80 p., paper, 25 cents. Over 87,000,000 people have some hospital insurance. Americans spend 10.2 billion dollars for personal health, and families with insurance spend twice as much as those without.

A NEW APPROACH TO OFFICE MECHANIZATION: Integrated Data Processing Through Common Language Machines—Elizabeth Marting, Ed.—*American Management Association*, 62 p., illus., paper, \$2.50. Under this plan, the five-hole punched tape is the common language link between the original recording of data and any subsequent handling. The human link is now restricted to the original recording. After that everything is automatic.

NEWER CONCEPTS OF THE CAUSES AND TREATMENT OF DIABETES MELLITUS: Proceedings of the Symposium on Diabetes Sponsored by the New York Diabetes Association and Held at Memorial Hospital and the New York Academy of Sciences, New York City, October 8, 1953—

Herbert Pollack, Chairman—*National Vitamin Foundation*, 181 p., illus., paper, \$2.50.

THE PSYCHOLOGY OF THE CRIMINAL ACT AND PUNISHMENT—Gregory Zilboorg—*Harcourt, Brace*, 141 p., \$3.50. A psychiatrist gives in these pages new insight into the attitudes, traditional outlook and difficulties of judge, jury, opposing lawyers and the psychiatric expert witnesses. He stresses the importance of treating the criminal instead of "making the punishment fit the crime."

THE RELATIONSHIPS OF OLD AND NEW WORLD MELANIANIS—J. P. E. Mortimer—*Smithsonian*, 38 p., illus., free upon request direct to publisher, Washington 25, D. C. Describing the strange reproductive systems of certain freshwater snails that lay their eggs with their feet. Study of these systems tends to clear up the confusion with regard to their evolution.

RIDER'S SPECIALIZED AUTO RADIO MANUAL: 1-A Ford, Lincoln, Mercury—*Rider*, 182 p., illus., paper, \$3.00. The first of a series of manuals providing factory-prepared service information on particular brands of radio receivers.

SERVICING TV VERTICAL AND HORIZONTAL OUTPUT SYSTEMS—Harry E. Thomas—*Rider*, 172 p., illus., paper, \$2.40. Aid for the serviceman.

A SYSTEMATIC STUDY OF THE AVIAN FAMILY FRINGILLIDAE BASED ON THE STRUCTURE OF THE SKULL—Hartison B. Tordoff—*University of Michigan Press, Miscellaneous Publications, Museum of Zoology, University of Michigan*, No. 81, 41 p., illus., paper, 75 cents. The Fringillidae are a diverse family, the sole distinguishing character of which is a strong tendency for the bill to be heavy and conical.

TRANSISTORS: Theory and Practice—Rufus P. Turner—*Gernsback*, 144 p., illus., paper, \$2.00. An elementary explanation of difficult concepts such as semiconductors and the movement of "holes."

TREASURE-DIVING HOLIDAYS—Jane and Barney Crile—*Viking*, 263 p., illus., \$3.95. The adventures of a family whose playground was the ocean's floor, where many treasures were hunted, from abalones to wrecks of sunken ships.

TV FIELD SERVICE MANUAL, Vol. 1—Harold Alsberg, Ed.—*Rider*, 119 p., illus., paper, \$2.10. To aid the technician in locating trouble quickly.

TWO SILICIFIED CARBONIFEROUS TRILOBITES FROM WEST TEXAS—Harry B. Whittington—*Smithsonian*, 16 p., 3 plates, paper, 35 cents. Based on a collection at the U. S. National Museum.

THE WASHO ROAD TEST: Part 1: Design, Construction and Testing Procedures—Fred Burggraf and W. J. Miller, Eds.—*Highway Research Board, Special Report 18*, 121 p., illus., paper, \$2.25. The first of two final reports on a study of special pavement sections under selected heavy axle loads. The test road is incorporated in a new highway two miles north of the Idaho-Utah border.

WESTERN BIRD SONGS: The Voices of 10 Familiar Songbirds of Western North America, Recorded in Their Native Habitats—William R. Fish—*Cornell University Records*. Two sides of one 10-inch record, 78 rpm, \$2.50. Produced by a talented amateur ornithologist for the Albert R. Brand Bird Song Foundation.

WHAT TO DO ABOUT DERMATITIS—William A. Sawyer—*International Association of Machinists*, 26 p., paper, 15 cents. This booklet is sponsored by the IAM in the hope that it may reduce the suffering and economic loss caused by this inflammation, often occupational in origin.

Science News Letter, May 22, 1954

GOLF: Your LEFT SHOULDER makes the amazing difference!

One of the most startling discoveries to emerge from wide research in the golf swing is that your game literally hinges on your left shoulder! How this is so and how to use this great discovery to improve your own game beyond all expectation in a matter of short weeks is set forth in **THE GOLF SECRET** by Dr. H. A. Murray—a medical doctor, golfer, and golf researcher, who has applied his expert knowledge of anatomy in this sweeping and utterly different study of the golf swing.

His method has now been tested on a large scale and been found to yield simply astounding results! Not only do golf scores take a sudden drop, but with the new method good golf is a hundred times easier than bad—because it is **NATURAL** (not strained) golf.

You may find out "the golf secret" for yourself, without risk. See below.

THE GOLF SECRET by H. A. Murray
\$2.50 Postfree • 5-Day Money-Back Guarantee
EMERSON BOOKS, Inc., Dept. 15-K
251 W. 19th St., New York 11

ORDER NOW:

MEDICINE

Test for Thyroid Trouble

► THE BASIS for better diagnosis and treatment of thyroid deficiencies in infants and children has been established by scientists of the University of California School of Medicine, San Francisco.

In the unique experiments, which are recounted in a recent series of articles in the *American Journal of Diseases of Children*, the scientists used a colony of baby monkeys to establish the tests. The monkeys were housed in a special nursery and given the best modern pediatric care.

Thyroid deficiencies in the past have been very difficult to detect in young infants. If the deficiency remains undetected too long, the child may suffer permanent damage, including mental deficiency and cretinism. If the deficiency is diagnosed early, treatment may give the child a normal life.

The California scientists observed cretin and normal monkeys from the first days of life. They studied the amount of calcium, phosphorus, protein, etc., incorporated into the body at different periods. They made X-rays at regular intervals.

When they got through, the scientists had

a set of criteria which could reveal precise differences in normal and cretin monkey infants at a very early age. Moreover, since monkey and human biology is quite similar, the tests could be adapted for humans.

Through biochemical analyses, radioiodine tests and bone X-rays, in addition to clinical observations, better differentiation can be made between thyroid deficiency and other disorders of growth and development. Thus more precise treatment can be given.

In the United States, the findings are significant primarily in sporadic cretinism, which results from congenital failures in thyroid development. Endemic cretinism, which may occur where there is a natural lack of iodine in the soil, is not as commonly seen in this country.

The scientists conducting the studies included Drs. Donald Pickering, Francis S. Smyth, Delbert A. Fisher, Lee B. Lusted, Jackson T. Crane and Kenneth G. Scott. The baby monkeys were provided by Dr. Gertrude van Wagenen of Yale University Medical School.

Science News Letter, May 22, 1954

• RADIO

Saturday, May 29, 1954, 3:15-3:30 p.m. EDT
"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Dr. George K. Davis, professor of nutrition, University of Florida, will discuss "Research Upon Food."

OCEANOGRAPHY

Underwater Current Near Pacific Equator

► MUSLIN SEA anchors dragged through Pacific Ocean waters near the equator have revealed an eastward underwater current with a speed of over one mile an hour.

This discovery was announced in *Science* (May 7) by Dr. R. B. Montgomery of Brown University, Providence, R. I., and Drs. Townsend Cromwell and E. D. Stroup of the U. S. Fish and Wildlife Service, Honolulu, T. H.

The eastward current is narrow, and flows beneath the westward South Equatorial Current. The newly discovered eastward underwater current is separated from the long-known Equatorial Countercurrent, which also runs eastward, by water that flows in a westerly direction.

Sea anchors used in the survey were cone-shaped devices, made of light muslin attached to an aluminum alloy hoop, weighted at the bottom and bouyed at the top so that it would remain upright. Piano wire joined the deep drags to streamlined floats.

Speed of the sea anchor was found by following the surface float with the Fish and Wildlife's research vessel, Hugh M. Smith, and by radar. The study was sponsored by the Office of Naval Research.

"Equatorial Undercurrent" is the name the three scientists propose for the eastward underwater stream, which runs about 150 feet below the ocean surface.

Science News Letter, May 22, 1954

ARCHAEOLOGY

Tiny Prehistoric Tools

► TINY STONE tools, so delicate and small that the cutting edge can be studied only by using a powerful hand lens or microscope, were used by prehistoric people of the Arctic to carve on ivory.

These micro-tools were reported for the first time by Dr. J. Louis Giddings Jr. of the University Museum, Philadelphia, at the Society for American Archaeology meeting in Albany, N. Y. They are only an inch long and look something like a phonograph needle, except that they are square instead of round.

The little engraving tools were made, perhaps as much as 10,000 years ago, by flaking them off another small engraving tool known to archaeologists as a "burin," and originally thought peculiar to Stone Age man in Europe. Burins have now been found at various sites around the Arctic Circle from Cape Denbigh, Alaska, to Hudson Bay and Greenland.

With the burins, archaeologists have found literally hundreds of the chips which are called "spalls." Dr. Giddings and his colleagues had assumed that the flakes were chipped off simply to sharpen the burins when they became dull through wear.

Recently it occurred to Dr. Giddings to examine the burins he had collected for evidence of such wear. He found many with no evidence of wear at all. They had evidently been chipped, not to sharpen the burin, but just for the sake of producing the chip.

Although many of the burins had been

used as tools, in a sense they were only an intermediate product in the manufacture of the smaller and more delicate engraving tools.

Dr. Giddings has received confirmation from his colleague, Dr. Larsen Helge of the Danish Museum in Copenhagen, that such tiny engraving tools were also found in Greenland.

Science News Letter, May 22, 1954

BARGAIN PARADISES OF THE WORLD

Do you know where to find an island right near the U. S. so nearly like Tahiti in appearance, beauty, and color even the natives say it was made from a rainbow? (And that costs here are so low you cannot only reach it but also stay a while for hardly more than you'd spend at a resort in the U. S.?)

Do you know where to find the world's best mountain hideaways or its most dazzling surf-washed coastal resorts, where even today you can live for a song?

Do you know where it costs less to spend a while, the surroundings are pleasant, and the climate well high perfect in such places as Mexico, the West Indies, Peru, France, along the Mediterranean, and in the world's other low cost wonderlands?

Or if you've thought of more distant places, do you know which of the South Sea Islands are as unspoiled today as in Conrad's day? Or which is the one spot world travelers call the most beautiful place on earth, where two can live in sheer luxury, with a retinue of servants, for only \$175 a month?

Bargain Paradises of the World, a big new book with about 100 photos and 4 maps, proves that if you can afford a vacation in the U. S., the rest of the world is closer than you think. Authors Norman D. Ford and William Redgrave, honorary vice presidents of the Globe Trotters Club, show that the American dollar is respected all over the world and buys a lot more than you'd give it credit for.

Yes, if you're planning to retire, this book shows that you can live for months on end in the world's wonderlands for hardly more than you'd spend on a few months at home. Or if you've dreamed of taking time out for a real rest, this book shows how you can afford it.

In any case, when it can cost as little as \$24.50 from the U. S. border to reach some of the world's Bargain Paradises, it's time you learned how much you can do on the money you've got. Send now for **Bargain Paradises of the World** on a money back guarantee if not satisfied. Price \$1.50. Wrap up dollar bill and coins (or send check or money order) and mail with ad and name and address to **HARIAN PUBLICATIONS, 20 SCRANTON AVE., GREENLAWN (LONG ISLAND), NEW YORK.**

Mexico ★ Majorca
West Indies ★ Peru

GENERAL SCIENCE

Award Top Prizes At Fifth Science Fair

► THE FIVE first prizes in the Fifth National Science Fair were awarded to: Doris Jean Hermes, 18, Martinsville (Va.) High School; Philip Robert Lichtman, 17, Woodrow Wilson High School, Washington, D.C.; and Samuel Theodore Scott Jr., 16, West End High School, Nashville, Tenn., who tied for first place in the physical group for the boys; Leigh Ferne Temme, 18, Lutheran High School, St. Louis, Mo., and James D. Gohman, 16, Teachers College High School, Cedar Falls, Iowa.

Each first prize consisted of \$125 in scientific equipment. The Fair was held May 13 to 15 at Purdue University, LaFayette, Ind., with 95 high school students competing for top honors.

Competition was so intense and close that 18 instead of the announced 12 awards were made. The second-place awards, each \$75 in scientific equipment and books of their own choosing, were taken by: Patricia Ruth Ludeman, 18, Chattanooga (Tenn.) High School; Sarah Patricia Bellamy, 16, Bakersfield (Calif.) High School; Martial Leon Thiebaut Jr., 17, Whittier (Calif.) High School; Donald Louis Crabtree Jr., 18, Richmond (Ind.) Senior High School; David Charles Waters, 17, Trenton (N.J.) Central High School; Patricia Ann Pascus, 16, Farmington High School, Unionville, Conn.; Carolyn Sue Evans, 18, Martinsville (Va.) High School, and Richard LeRoy Ware, 18, Richmond (Ind.) High School.

Third-place awards of \$50 in "wish-list" equipment went to: Sidney E. Lyons Jr., 16, Chattanooga (Tenn.) High School; David Irvin Gilbert, 17, George Washington High School, San Francisco, Calif.; Charles William Waldron, 18, Midland (Mich.) Senior High School; Rebecca Jane Hutto, 17, Tipton (Ind.) High School, and Alice Louise Shaffer, 17, Union-Endicott High School, Endicott, N. Y.

The National Science Fair is sponsored by Science Clubs of America, administered by Science Service, with newspapers, universities, professional, technical and civic societies as co-sponsors.

Science News Letter, May 22, 1954

Several hundred persons are killed by lightning each year.

TRANSPARENT PLASTIC BOXES



Write for Data TPB-SNL

R. P. CARROLL LABORATORIES, INC.
117 Liberty Street, New York, N. Y.

BOTANY

NATURE RAMBLINGS



Wild Flowers

► THE BEAUTY of nature's wonderful wild flowers has been captured for nature lovers everywhere in one of the most superbly illustrated books ever printed.

"Wild Flowers of Western Pennsylvania and the Upper Ohio Basin" will probably rank with Audubon's magnificent books and paintings of birds as a scientific work of art.

The two-volume book is the result of years of work by two friends, Dr. Otto E. Jennings who wrote the text and the late Dr. Andrey Avinoff who painted the 200 delightful water colors. (See SNL, Dec. 13, 1953, p. 398.)

The volumes were made possible by three Pittsburgh institutions, the University of Pittsburgh, the Carnegie Institute and the Buhl Foundation. Though they are costly, the \$60 price for the set is still far less than the actual cost of printing, illustrating and binding.

The first volume contains scientific descriptions of 2,200 wild flower species by Dr. Jennings. He is the former head of the department of biological sciences at the University of Pittsburgh.

Dr. Avinoff's water color paintings of 200 of the flowers are in the second volume. Brief descriptions and comments on each flower illustrated were written by Dr. Jennings. The paintings were made from living flowers and seem to spring life-like from the pages of the book. Special care was taken in the printing to insure faithful reproduction of the original paintings.

Only 3,000 sets were printed. Many botanists and museum directors feel that the set will quickly become classic, and the flower illustrations will be framed as works of art.

Science News Letter, May 22, 1954

Nearly a million ladybugs have been flown from this country to Saudi Arabia to destroy plant lice there; the ladybugs were kept dormant in six one-gallon containers in cold storage.

PSYCHIATRY

Psychiatrist's Advice May Save Wives' Lives

► THIS MAY save the lives of a few wives. Separation of husband and wife is advised when they cannot understand and remedy emotional conflicts that could result in one killing the other.

At the American Psychiatric Association meeting in St. Louis, Dr. Albert A. Kurland, director of medical research, Spring Grove State Hospital, Catonsville, Md., told of a survey over a 25-year period of mental patients committed for homicide, with the victims mostly wives.

From them and from husbands and wives who had survived homicidal assaults, he suggested danger signs in married life:

1. An increasing amount of the acting out of hostile impulses by words, the threatening use of weapons, and physical assaults.
2. Increasing alcoholism.
3. Emotional clashes due to expressions of jealousy, infidelity and persecution.
4. An increasing limitation and dissatisfaction with sexual expression in the marriage.
5. An increasing inability to discuss their emotional conflicts with each other.

When the wife tries to control the behavior of the husband, danger signs are:

1. When she resorts to blaming him when she herself attempts to remain blameless.
2. When she increasingly threatens her husband with disruption of the marriage.

Dr. Kurland advised his fellow psychiatrists to make very plain "the unconscious nature of their sado-masochistic relationship" when a homicide has been attempted. The doctor should not minimize the destructive forces in operation.

"If an effective communication dealing with their emotional conflicts cannot be established with them, separation should be recommended or the ultimate outcome may be catastrophic," Dr. Kurland stated.

Science News Letter, May 22, 1954



GO PLACES

LISTEN and LEARN A LANGUAGE by LINGUAPHONE in 20 MINUTES A DAY

World's-Standard CONVERSATIONAL METHOD
FRENCH AT HOME, you learn another language—easily, quickly, naturally by LINGUAPHONE. You LISTEN—you hear native men and women speak—you understand—YOU SPEAK! World-wide educational endorsement: a million home-study students of all ages. STOP Wishing—START Talking. Write Today for Free Book, "Passport to a New World of Opportunity."

LINGUAPHONE INSTITUTE
3105 RCA Building, N. Y. 20, N. Y.
Send me your FREE book.
Language interest
Name
Address
City, Zone & State
Leaders for 50 Yrs. in Up-to-Date Language Courses

ARCHAEOLOGY

Single Stone Age Culture

► A SINGLE Stone Age Indian culture, or "Paleo-Indian co-tradition," may have once existed over the whole of the North American continent and persisted for several thousand years.

Evidence of this was reviewed for the Society for American Archaeology meeting in Albany, N. Y., by Dr. John L. Cotter of the National Park Service.

These early inhabitants of America followed much the same way of life and went through pretty much the same course of cultural development. The Stone-Age Indian used spears, atlatls, or both, and hunted large vegetable-eating animals. He used a wide variety of skinning and hide-working tools.

One widespread theme of design cited by Dr. Cotter is the beveled bone spear tip first found by him in association with fluted blades and extinct game animals at Clovis, N. M. Later, this type of bone shaft has been found at Lower Klamath Lake, Oregon; Lind Coulee, Washington; in the Itchucknee River, north-central Florida, and at Coldstream, Tanana Valley, Alaska.

"Ever since I participated in the original Clovis find," Dr. Cotter told the meeting, "I have considered these beveled shaft por-

tions of bone to be derivative from the familiar 'sagaie' or javelin points of bone or reindeer horn from the traditional Lower Magdalenian of Europe. It is not difficult to assume the spread of this upper Paleolithic trait across Siberia into the New World, allowing for an expected cultural lag while the trait remained in the Arctic regions of the Old and New World before dissemination into North America after the last glaciation.

"As for the fluted blade, here we have an artifact encumbered with a number of more or less obfuscating (confusing) type names, with a distribution comparable to that of the beveled shaft parts, from Alaska to Florida, but with representation throughout the entire United States and the provinces of Canada."

The Paleo-Indian co-tradition might be likened, Dr. Cotter said, to the crudely-sewn garments a citizen of that era might have worn. The skins of the leggings and blouse or parka represent the broad regional traditions, and the thread binding the fabric together represents the essential and distinctive traits common to the Paleo-Indian over the entire continent and throughout the whole span of several thousands of years.

Science News Letter, May 22, 1954

TECHNOLOGY

Plastics for Tooling-Up

► TOOLING-UP IS necessary whether a new automobile or a novel guided missile is being put into production.

Plastics are now helping to make the machines that make our machines. Plastic tools used in producing articles are cheaper and faster to fashion and get into use.

Not many years ago, use of plastic materials for construction of jigs and fixtures would have been ridiculed. Now, however, plastics are replacing metal for this use.

As Benjamin Sokol of the Republic Aircraft Corporation told the meeting of the American Society of Tool Engineers, Philadelphia, plastics in manufacturing save time, labor and weight. A metal tool that weighed 3,100 pounds was replaced by a plastic one weighing only 240 pounds. Curves can be molded easily instead of machined. Alterations and duplications are simple.

Lower prices for automobiles and home appliances are foreseen by G. C. Adams of Rezolin, Inc., Los Angeles, as a result of the wider use of plastic tools. The automobile, appliance and other industries do not require tooling for millions of parts, but usually for only a few thousand parts. Plastic tools can do such tasks. A single plastic die has been used to draw as many as 30,000 parts.

Complicated and costly machine tools for weapons production are now stored in an

abandoned limestone mine at Atchison, Kans., ready for instant use in another war. Sixteen acres of space in this cave are warehouse lighted, dehumidified and floored with concrete, providing bombproof, sabotage-proof, naturally constant-temperature storage.

It costs 17 cents per square foot every year to store the millions of dollars worth of tools owned by the Army Ordnance Corps, it is reported in *Ordnance* (May-June).

Science News Letter, May 22, 1954

ICHTHYOLOGY

Count Salmon at Two Dams on Columbia River

► CHINOOK SALMON, now making their spring run up the Columbia River, will be counted this year for the first time at two points, the McNary and Bonneville Dams, 150 miles apart.

It takes the migrating fish about two weeks to swim the distance upstream. The difference in the counts will give U. S. Army engineers and fish experts some idea of the number of fish caught. Both Chinook salmon and steelhead trout will be listed as they pass through the counting stations.

Science News Letter, May 22, 1954

Questions

AGRICULTURE—What farm by-products have been put to commercial use? p. 326.

What is macadamia? p. 329.

□ □ □

ARCHAEOLOGY—For what were micro-tools used? p. 333.

□ □ □

ASTRONOMY—What are supernovas? p. 324. In what way is the coming solar eclipse unusual? p. 330.

□ □ □

BACTERIOLOGY—How can germicides now be evaluated? p. 327.

□ □ □

MEDICINE—What damage results from re-
viving "dead" persons? p. 329.

□ □ □

OCEANOGRAPHY—How was the "Equatorial Undercurrent" traced? p. 333.

□ □ □

VITAL STATISTICS—What is the average expected life length for American women? p. 328.

□ □ □

Photographs: Cover, George A. Smith; p. 323, Federal Civil Defense Administration; p. 325, Convertawings, Inc.; p. 326, Sperry Gyroscopic Co.; p. 327, William Duncan Strong; p. 336, Allen Sommers.

How did Life come to this planet?

Did Life come to Earth through "spontaneous generation" or by spore-laden cosmic dust? Or has it always existed here? Read A. I. Oparin's now-classic

"ORIGIN OF LIFE"

and find out why many scientists now reject all of these older explanations in favor of Oparin's theory that living tissue was preceded by a gradual evolution of organic substance—of the carbon and nitrogen compounds on which all organisms depend.

New York Times writes: "Easily the most scholarly authority on the question of the origin of life as treated by the scientists. The book is excellent. It will be a landmark of discussion for a long time."

Amer. Chem. Soc. Journal says: "A very fascinating hypothesis. Many chemists will want to read this volume over and over again."

Scientific Book Club claims: "Will prove of great interest to the general reader."

304pp. Rave \$1.80. Paperbound, \$1.70

HISTORY OF ASTRONOMY from Thales to Kepler by J. L. E. Dreyer. (Rev. ed. of Dreyer's famous "Hist. of Planetary Systems from Thales to Kepler.") 448 pp. Paperbound, \$1.95

LAWS OF THOUGHT by George Roope. The classic of symbolic logic. Recommended by Bertrand Russell, others. 448 pp. Paperbound, \$1.90

PRINCIPLES OF PHYSICAL OPTICS by E. Mach. Unabridged reprint of Eng. transl. of last German ed. 10 plates, 280 diagrams. 334pp. Paperbound, \$1.75

WORKS OF ARCHIMEDES AND METHOD OF ARCHIMEDES. Ed. by T. L. Heath. 500pp. Unabridged. Paperbound, \$1.95

FLATLAND by E. A. Abbott. Life in a two-dimensional world; science-fiction with political overtones. Intro. by Hoffmann. 109pp. Paperbound, \$1.00

MATHEMATICAL RECREATIONS by Kreitchik. Over 250 problems involving magic squares, roulette, probability, chess, etc. For experts and beginners. 181 ill. Revised ed. 328pp. Orig. pub. at \$4.95. Paperbound, \$1.60

HOW TO ORDER. Send remittance to Dover Pub. Dept. 227, 920 Broadway, N. Y. 10, N. Y. Add 10¢ per book postage. Money back in ten days if not delighted.

• New Machines and Gadgets •

For sources of more information on new things described, send a self-addressed stamped envelope to SCIENCE NEWS LETTER, 1719 N St., N.W., Washington 6, D. C., and ask for Gadget Bulletin 727. To receive this Gadget Bulletin without special request each week, remit \$1.50 for one year's subscription.

⚙️ **ANTI-SLIP PLASTIC** paint coats stairs, steps and floors with abrasive aluminum oxide granules held in a plastic base to increase friction between shoes and floor. The product originally was developed for the armed forces as a non-skid deck coating for ships, rudder pedals of airplanes, cat walks and slippery tank bottoms.

Science News Letter, May 22, 1954

⚙️ **PORTABLE DRAWER** case, designed especially for the serviceman, repairman, demonstrator, salesman and doctor, features 24 transparent plastic drawer compartments housed in a hammer-finished, two-door, rubber-footed case. The drawers are 1 7/16 inches high, 2 1/4 inches wide and 5 1/4 inches deep. A large steel drawer is built into the bottom of the case.

Science News Letter, May 22, 1954

⚙️ **SIX-IN-ONE FUSE** is a cartridge that screws in ordinary fuse boxes. When an overload blows a fuse, a tiny neon lamp blinks on to show which fuse needs changing. Instead of putting in a new fuse, the homeowner merely clicks the fuse cap to the next position, after first removing the overload on the circuit. This restores the electric power.

Science News Letter, May 22, 1954



⚙️ **JUNIOR-SIZED PLANETARIUM** is a small, inexpensive, plastic globe that can show about 40 constellations of about 300 stars. Designed for use in the home or school, the planetarium projector, shown in

the photograph, works in any dark room of any shape. It can be adjusted for seasons and hemisphere.

Science News Letter, May 22, 1954

⚙️ **TELEPHONE AMPLIFIER** is a neat, two-way electronic device that permits you to carry on a conversation up to 15 feet from your telephone. The phone cradle is placed on the instrument, and the voice of the caller is amplified through a loudspeaker.

Science News Letter, May 22, 1954

⚙️ **HOSE VALVE** works with a push or a pull to turn garden hoses off or on. The valve can be screwed into the hose between sections, or between hose and nozzle. The device will save the user a lot of trips to the faucet, say, while washing his automobile.

Science News Letter, May 22, 1954

⚙️ **DOOR STOP** for cars is made of natural rubber and triple-plated rustproof chrome. Clamping to all makes of auto doors, the stop protects car doors from damage when opened against a brick wall, or against another car in a tight-fitting parking lot.

Science News Letter, May 22, 1954

⚙️ **RUBBER KNEE** pad fits the big-boned joint of the burly factory worker as well as the more delicate knee of his feminine counterpart. Strapped high on the calf, the knee pad will not slip out of place, and its waffle-like tread is designed to grip slick surfaces tenaciously.

Science News Letter, May 22, 1954

A FEW MEMBERSHIPS ARE NOW AVAILABLE

in *Things of science*

A WONDERFUL GIFT . . . ANY TIME OF YEAR

ONCE A MONTH for a year we will pack a blue package with scientific fun, with mental stimulation, with hours of absorption, with future hobbies, with knowledge; but specifically we will pack the boxes with THINGS of science—real objects of science to be handled and looked at and owned. And with them, sheets of suggested experiments and complete explanations of them. There are now more than ten thousand members of the group of friends of science who receive one of these exciting boxes each month. This unusual service comes one year postpaid for \$5.00. (Add \$1 for additional postage on outside U.S.A. addresses) Use this coupon to send in your gift memberships NOW.

Send *THINGS of science* for one year to the names and addresses on the attached sheets.

- ☐ Renew my own subscription for one year.
- ☐ Payment enclosed. ☐ Bill me.
- ☐ Send gift card in my name as imprinted at the left.

5-22-4

Do You Know?

A 40% drop in tuberculosis deaths among World War II veterans from 1948 to 1952, inclusive, has been reported.

Specifications for the last Hoover Dam generator have been issued by the Department of the Interior; the dam was started in 1931.

A captive elephant eats 120 pounds of hay, 36 pounds of assorted grains, vegetables and stale bread, and drinks 30 to 50 gallons of water a day.

Special ballots marked with metallic pencils to be tabulated by electric accounting machines at the rate of 400 votes every six minutes have been tested in elections.

England was probably the first country to pass smoke ordinances; King Edward I (1272-1307) prohibited the burning of coal in London when Parliament was in session.